Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

NATIONAL QUALITY MEASURES CLEARINGHOUSE

General

Title

Long-stay nursing home care: percent of residents who self-report moderate to severe pain.

Source(s)

RTI International. MDS 3.0 quality measures user's manual, v9.0. Baltimore (MD): Centers for Medicare & Medicaid Services (CMS); 2015 Oct 1. 80 p.

Measure Domain

Primary Measure Domain

Clinical Quality Measures: Outcome

Secondary Measure Domain

Does not apply to this measure

Brief Abstract

Description

This measure is used to assess the percent of long-stay residents who self-report report either (1) almost constant or frequent moderate to severe pain in the last 5 days or (2) any very severe/horrible pain in the last 5 days.

Rationale

This measure is a high impact measure given the high proportion of residents with pain and the potentially serious physiological consequences of it not being treated. Research indicates that at least 40% to 85% of nursing facility residents have persistent pain. The percentage may be even higher; research suggests that pain is often not fully documented (Ferrell, Ferrell, & Osterweil, 1990; Parmelee, Smith, & Katz, 1993; Sengstaken & King, 1993; Weiner & Rudy, 2002; Centers for Medicare and Medicaid Services [CMS], n.d.; Mor et al., 2004; Wu et al., 2003).

Failure to identify the presence of pain or to assess its severity and functional impact can leave a potentially treatable symptom unrecognized and therefore unlikely to be addressed. Indeed, evidence

suggests that pain is consistently under-treated, particularly among individuals with cognitive impairment (Sengstaken & King, 1993; Cook, Niven, & Downs, 1999; Won et al., 1999). A standard measure of resident pain is needed because of gaps in nursing staff's knowledge of "best practice" pain management in hospitals and nursing facilities (Weiner & Rudy, 2002; McMillan et al., 2000; Mrozek & Werner, 2001; Allcock, McGarry, & Elkan, 2002; Saliba & Buchanan, 2008). A standard measure also provides a benchmark for pain management practices that vary widely across nursing homes (Cramer et al., 2000; Allcock, McGarry, & Elkan, 2002; Saliba & Buchanan, 2008).

Among the potential adverse physiological and psychological effects of unrelieved pain are impaired gastrointestinal and pulmonary function; nausea and dyspnea; increased metabolic rate, including increased tumor growth and metastasis in cancer; impaired immune response; insomnia, delayed healing, increased blood clotting, loss of appetite, and the inability to walk or move about; impairment of joint function with functional decline and increased dependency; and anxiety and depression (Scherder & Bouma, 2000; Wrede-Seaman, 2001; Sachs, Shega, & Cox-Hayley, 2004; Hanson, Tulsky, & Danis, 1997). In the general population, unrelieved pain costs millions of dollars annually as a result of longer hospital stays, rehospitalizations, outpatient care, and emergency room visits (Berry & Dahl, 2001; Cousins, n.d.; Sydow, 1988; Wattwil, 1988; Desbiens et al., 1997; BenDebba, Torgerson, & Long, 1997; Liu, Carpenter, & Neal, 1995; McCaffery & Pasero, 1999; Hughes et al., 1997; Casten et al., 1995; Grant et al., 1995; Sheehan, et al., 1996).

Facilities can use this information to determine whether they need to improve their pain management practices for their long-stay residents. Reduced pain among long-stay nursing facility residents is the expected benefit of this measure.

Evidence for Rationale

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Primary Health Components

Nursing home; long stay; pain

Denominator Description

All long-stay residents with a selected target assessment, except those with exclusions (see the related "Denominator Inclusions/Exclusions" field)

Numerator Description

Long-stay residents with a selected target assessment where the target assessment meets *either* or *both* of the following two conditions:

> Condition #1: resident reports almost constant or frequent moderate to severe pain in the last 5 days. *Both* of the following conditions must be met:
> 1.1. Almost constant or frequent pain, *and*
> 1.2. At least one episode of moderate to severe pain.
>
> Condition #2: resident reports very severe/horrible pain of any frequency.

See the related "Numerator Inclusions/Exclusions" field.

Evidence Supporting the Measure

Type of Evidence Supporting the Criterion of Quality for the Measure

A clinical practice guideline or other peer-reviewed synthesis of the clinical research evidence

A formal consensus procedure, involving experts in relevant clinical, methodological, public health and organizational sciences

One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

Additional Information Supporting Need for the Measure

- Pain has been shown to have a negative effect on quality of life; it is associated with declines in autonomy, security, and spiritual well-being and increases in anxiety and depression (Herman et al., 2009). Existing research studies reviewing the impact of pain relief interventions at the actor, decision-support, treatment, and system levels agree that pain relief leads to increased quality of life (Degenholtz et al., 2008; Zanocchi et al., 2008; Kenefick, 2004).
- Although the number of high-quality studies of pain management in nursing facilities is limited, those studies agree that resident pain is under-recognized and under-treated (Herman et al., 2009). A recent record audit of 291 residents in 14 long-term care facilities found a significant gap between evidence-based pain management recommendations and facility practices. Assessment was particularly weak; only 32% of the cases reported for pain once or twice a week, and only 3% of the cases reviewed had reported that pain impacted functioning and quality of life two or more times during the previous 30 days (Jablonski & Ersek, 2009). One study focusing on pain in cancer patients reported underuse of analgesics and hospice, along with nursing facility staffing patterns as key issues in inadequate pain treatment for this population (Duncan, Forbes-Thompson, & Bott, 2008). Many studies and literature maintain that almost all pain, including pain at the end of life, can be managed with appropriate assessment and treatment, and research in pain management has identified the adoption of systematic implementation models, clinical decision-making algorithms, interdisciplinary approaches, and ongoing outcome evaluations as effective means to deliver effective pain relief in nursing homes (Scherder & Bouma, 2000; Wrede-Seaman, 2001; Sachs, Shega, & Cox-Hayley, 2004; Hanson, Tulsky, & Danis, 1997; Swafford et al., 2009).
- The literature reported mixed results for disparities in pain by race, gender, and age. Although there is evidence of racial segregation between nursing homes, with African Americans tending to be concentrated in facilities with higher deficiency ratings, there has been little study of resulting potential disparities in reported pain (Smith et al., 2007; Howard et al., 2002; Grabowski, 2004). The research conducted on racial disparities in pain treatment has shown a greater incidence of untreated pain for black residents with cancer as compared to white residents with cancer (Bernabei et al., 1998; Hanlon et al., 2009). Another study on nursing home residents with cancer found that older residents (equal to 86 years of age) were less likely and female residents were more likely to receive pain medication in the month of or the month after cancer diagnosis (Clement, Bradley, & Lin, 2009). A report based on 2004 National Nursing Home Survey has revealed disparities by race and dementia (Sengupta, Bercovitz, & Harris-Kojetin, 2010). Nonwhite residents with dementia were least likely, and white residents without dementia were most likely, to report or show signs of pain. Among residents with dementia and pain, nonwhite residents were more likely than white residents to lack appropriate pain management (Sengupta, Bercovitz, & Harris-Kojetin, 2010). However, a study on both community and institutionalized people found that persons with dementia had a higher probability of use of paracetamol and were about as likely as persons without dementia to use any analgesic, opioids and nonsteroidal anti-inflammatory drugs (NSAIDs), after adjustment for confounders and the care setting (Hassum et al., 2011).
  Another study discovered that after controlling for facility characteristics (e.g., rural/urban location, percentage of Medicaid residents within the facilities, staffing and ownership), none of age, race, gender, Medicaid status was correlated with moderate to severe pain (Kang, Meng, & Miller, 2011). Research has also identified disparities in pain management between cognitively intact residents and those who are cognitively impaired (Lapane et al., 2010). In the current Minimum Data Set (MDS) 2.0 pain item, staff recording of cognitive status was inversely proportional to pain report; the most cognitively impaired residents were recording as suffering the least pain, and received the least pain therapy (Reynolds et al., 2008). In the MDS 3.0, new pain items were included that focus on patient interview and have been shown to be able to be answered by cognitively impaired residents (Saliba & Buchanan, 2008).

Evidence for Additional Information Supporting Need for the Measure

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Extent of Measure Testing

A joint RAND/Harvard team engaged in a deliberate iterative process to incorporate provider and consumer input, expert consultation, scientific advances in clinical knowledge about screening and assessment, Centers for Medicare & Medicaid Services (CMS) experience, and intensive item development and testing by a national Veteran's Health Administration (VHA) consortium. This process allowed the final national testing of Minimum Data Set (MDS) 3.0 to include well-developed and tested items.

The national validation and evaluation of the MDS 3.0 included 71 community nursing homes (NHs) (3,822 residents) and 19 VHA NHs (764 residents), regionally distributed throughout the United States. The evaluation was designed to test and analyze inter-rater agreement (reliability) between gold-standard (research) nurses and between facility and gold-standard nurses, validity of key sections, response rates for interview items, anonymous feedback on changes from participating nurses, and time to complete the MDS assessment.

Analysis of the test results showed that MDS 3.0 items had either excellent or very good reliability even when comparing research nurse to facility-nurse assessment. In most instances these were higher than those seen in the past with MDS 2.0. In addition, for the cognitive, mood and behavior items, national testing included collection of independent criterion or gold-standard measures. These MDS 3.0 sections were more highly matched to criterion measures than were MDS 2.0 items.

Improvements incorporated in MDS 3.0 produced a more efficient assessment: better quality information was obtained in less time. Such gains should improve identification of resident needs and enhance

resident-focused care planning. In addition, including items recognized in other care settings is likely to enhance communication among providers. These significant gains reflect the cumulative effect of changes across the tool, including use of more valid items, direct inclusion of resident reports, improved clarity of retained items, deletion of poorly performing items, form redesign, and briefer assessment periods for clinical items.

Refer to *Development & Validation of a Revised Nursing Home Assessment Tool: MDS 3.0.* for additional information.

Evidence for Extent of Measure Testing

Saliba D, Buchanan J. Development & validation of a revised nursing home assessment tool: MDS 3.0. Baltimore (MD): Quality Measurement and Health Assessment Group, Office of Clinical Standards and Quality, Centers for Medicare & Medicaid Services; 2008 Apr. 263 p.

State of Use of the Measure

State of Use

Current routine use

Current Use

not defined yet

Application of the Measure in its Current Use

Measurement Setting

Skilled Nursing Facilities/Nursing Homes

Professionals Involved in Delivery of Health Services

not defined yet

Least Aggregated Level of Services Delivery Addressed

Single Health Care Delivery or Public Health Organizations

Statement of Acceptable Minimum Sample Size

Specified

Target Population Age

All ages

Target Population Gender

Either male or female

National Strategy for Quality Improvement in Health Care

National Quality Strategy Aim

Better Care

National Quality Strategy Priority

Person- and Family-centered Care
Prevention and Treatment of Leading Causes of Mortality

Institute of Medicine (IOM) National Health Care Quality Report Categories

IOM Care Need

Getting Better

Living with Illness

IOM Domain

Effectiveness

Patient-centeredness

Data Collection for the Measure

Case Finding Period

Quarterly

Denominator Sampling Frame

Patients associated with provider

Denominator (Index) Event or Characteristic

Diagnostic Evaluation

Institutionalization

Denominator Time Window

not defined yet

Denominator Inclusions/Exclusions

Inclusions
All long-stay* residents with a selected target assessment, except those with exclusions

*Long-stay: An episode with cumulative days in facility (CDIF) greater than or equal to 101 days as of the end of the target period.

Exclusions

The target assessment is an admission assessment, a prospective payment system (PPS) 5-day assessment, *or* a PPS readmission/return assessment.
The resident is not included in the numerator (the resident did not meet the pain symptom conditions for the numerator) *and any* of the following conditions are true:
2.1. The pain assessment interview was not completed.
2.2. The pain presence item was not completed.
2.3. For residents with pain or hurting at any time in the last 5 days, *any* of the following are true:

2.3.1. The pain frequency item was not completed.
2.3.2. Neither of the pain intensity items was completed.
2.3.3. The numeric pain intensity item indicates no pain.

Note: Refer to the original measure documentation for details.

Exclusions/Exceptions

not defined yet

Numerator Inclusions/Exclusions

Inclusions
Long-stay residents with a selected target assessment where the target assessment meets *either* or *both* of the following two conditions:

Condition #1: resident reports almost constant or frequent moderate to severe pain in the last 5 days. *Both* of the following conditions must be met:
1.1. Almost constant or frequent pain, *and*
1.2. At least one episode of moderate to severe pain.

Condition #2: resident reports very severe/horrible pain of any frequency.

Note: Refer to the original measure documentation for details.

Exclusions
Unspecified

Numerator Search Strategy

Institutionalization

Data Source

Administrative clinical data

Type of Health State

Individually Reported Health State

Instruments Used and/or Associated with the Measure

Center for Medicare & Medicaid Services (CMS) Minimum Data Set (MDS) - Resident Assessment Instrument (Version 3.0)

Computation of the Measure

Measure Specifies Disaggregation

Does not apply to this measure

Scoring

Rate/Proportion

Interpretation of Score

Desired value is a lower score

Allowance for Patient or Population Factors

not defined yet

Description of Allowance for Patient or Population Factors

Risk adjustment refines raw quality measures (QM) scores to better reflect the prevalence of problems that facilities should be able to address. Two complementary approaches to risk adjustment are applied to the QMs.

One approach involves exclusion of residents whose outcomes are not under nursing facility control (e.g., outcome is evidenced on admission to the facility) or the outcome may be unavoidable (e.g., the resident has end-stage disease or is comatose). All of the QMs, except the vaccination QMs, are shaped by one or more exclusions. For each QM, the prevalence of the outcome across all residents in a nursing facility, after exclusions, is the *facility-level observed QM score*.

A second approach involves adjusting QM scores directly, using logistic regression. This method of adjustment employs *resident-level covariates* that are found to increase the risks of an outcome. Detailed specifications for resident-level covariates are presented in the Quality Measure Logical Specifications section of the *MDS 3.0 Quality Measures User's Manual*.

For this measure, resident-level limited covariate risk adjustment was used for persons with independence or modified independence in daily decision making on the prior Minimum Data Set (MDS) assessment:

> Covariate = 1 if C1000 = [0, 1] *or* if (C0500 greater than or equal to [13] and C0500 less than or equal to [15])
> Covariate = 0 if *any* of the following is true:

C1000 = [2, 3] *or*
(C0500 greater than or equal to [00] *and* C0500 less than or equal to [12]) *or*
C0500 = [99,-,^] *and* C1000 = [-,^]

All covariates are missing if no prior assessment is available.

Standard of Comparison

not defined yet

Identifying Information

Original Title

Percent of residents who self-report moderate to severe pain (long-stay).

Measure Collection Name

Nursing Home Quality Initiative Measures

Measure Set Name

Long-stay Quality Measures

Submitter

Centers for Medicare & Medicaid Services - Federal Government Agency [U.S.]

Developer

Centers for Medicare & Medicaid Services - Federal Government Agency [U.S.]

RTI International - Nonprofit Research Organization

Funding Source(s)

United States (U.S.) Government

Composition of the Group that Developed the Measure

United States (U.S.) Government Staff, Clinical Experts, Researchers, and Statisticians

Financial Disclosures/Other Potential Conflicts of Interest

No conflicts of interest exist.

Endorser

National Quality Forum - None

NQF Number

not defined yet

Date of Endorsement

2014 Nov 3

Measure Initiative(s)

Nursing Home Compare

Adaptation

This measure was not adapted from another source.

Date of Most Current Version in NQMC

2015 Oct

Measure Maintenance

Annual and endorsement

Date of Next Anticipated Revision

Quarter 4 2016

Measure Status

This is the current release of the measure.

This measure updates a previous version: RTI International. MDS 3.0 quality measures user's manual. v8.0. Baltimore (MD): Center for Medicare & Medicaid Services (CMS); 2013 Apr 15. 80 p.

Measure Availability

Source available from the Centers for Medicare & Medicaid Services (CMS) Web site .

For more information, refer to the CMS Web site at www.cms.gov .

Companion Documents

The following are available:

Saliba D, Buchanan J. Development & validation of a revised nursing home assessment tool: MDS 3.0. Baltimore (MD): Quality Measurement and Health Assessment Group, Office of Clinical Standards

and Quality, Centers for Medicare & Medicaid Services; 2008 Apr. 263 p. Available from the Centers for Medicare & Medicaid Services (CMS) Web site .
Nursing Home Compare. [internet]. Baltimore (MD): Centers for Medicare & Medicaid Services (CMS). 2000- [updated 2012 Nov 15]; [cited 2012 Nov 27]. This tool is available from the Medicare Web site .

NQMC Status

The NQMC summary was completed by ECRI on July 22, 2004. The information was verified by the measure developer on August 30, 2004.

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This NQMC summary was updated by ECRI Institute on August 15, 2013. The information was verified by the measure developer on December 3, 2013.

This NQMC summary was updated again by ECRI Institute on May 31, 2016. The information was not verified by the measure developer.

Copyright Statement

Production

Source(s)

RTI International. MDS 3.0 quality measures user's manual, v9.0. Baltimore (MD): Centers for Medicare & Medicaid Services (CMS); 2015 Oct 1. 80 p.

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